Object Oriented Design Process

**Analysis**

* **Domain**
  + **Identify entities in the problem domain**:
    - Boat
    - FleetManager (Actor)
    - BoatType
    - Expense (Action)
  + **Function points**:
    - FleetManager adds, removes, and prints boats.
    - FleetManager processes expense approvals.
    - FleetManager loads and saves fleet data.
  + **Scenarios**:
    - A fleet is initialized by loading data from a CSV or database.
    - A new boat is added to the fleet by the manager.
    - An existing boat is removed from the fleet.
    - Expenses are requested and approved based on business logic.
    - The fleet is saved back to the database for future runs.

**Design**

* **Classes and objects**
  + **Boat**
  + **FleetManager**
  + **BoatType**
* **Data of objects and classes**
  + **Boat**:
    - type of type BoatType (enum)
    - name of type String
    - year of type int
    - makeModel of type String
    - length of type double
    - purchasePrice of type double
    - expenses of type double
  + **FleetManager**:
    - fleet of type ArrayList<Boat>
  + **BoatType**:
    - Enum values: SAILING, POWER
* **Methods of objects and classes**
  + **Boat**:
    - Constructors:
      * Boat(BoatType type, String name, int year, String makeModel, double length, double purchasePrice)
    - toString method:
      * Formats boat details for output.
    - Getter methods:
      * Retrieve details like type, name, year, purchase price, and expenses.
    - addExpense method:
      * Adds a specified amount to the expenses.
  + **FleetManager**:
    - Constructors:
      * Initializes the fleet and loads data.
    - loadFleetData(String fileName):
      * Reads fleet data from a CSV or database file.
    - saveFleetData():
      * Saves fleet data to a database file.
    - addBoat():
      * Adds a new boat to the fleet.
    - removeBoat():
      * Removes a boat by name.
    - requestExpenseApproval():
      * Processes an expense request for a specific boat.
    - printFleet():
      * Outputs the entire fleet in a formatted manner.